

A contribution to the knowledge of the larger moth fauna (Lepidoptera, Macrolepidoptera) of Mt Litovka (Primorye Territory, Russia)*

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Abstract Three hundred and forty-three species of larger moths from 15 families (Cossidae, Limacodidae, Drepanidae, Geometridae, Thyatiridae, Lasiocampidae, Sphingidae, Saturniidae, Brahmaeidae, Bombycidae, Notodontidae, Lymantriidae, Nolidae, Noctuidae, Arctiidae) are recorded for the first time from Mt Litovka (Southern Sikhota-Alin' Range, Primorye Territory), of which 285 species are indicated for mixed broad-leaved-coniferous forest, 71 species for spruce-forest and 101 species for the subalpine zone. As the result of observations, more than 160 species of the lower floristic belt are found to be penetrating up to mountain taiga forest or even into the subalpine zone, among which 44 species turned out to be new for the high altitude zone of the Sikhota-Alin' Range. Among the Geometridae 3 species (*Scopula asthena*, *Venusia laria*, *Hydrelia adesma*) are recorded as new for Russia and 4 species (*Idaea versata*, *Scopula tenuisocius*, *Perizoma taeniatum*, *Eulithis prunata*) as new for Primorye Territory; among the Noctuidae 3 species (*Trichosea ludifica*, *Polia hepatica*, *Apamea sodalis*) are also recorded here for the first time for this region.

Key words Moth fauna, Macrolepidoptera, Primorye Territory, Russia, new record, mixed forest, spruce forest, subalpine zone, biotope.

Introduction

Mt Litovka (formerly—Khualaza, before it was renamed in 1967) is the second highest summit (1,279 m a. s. l.) of the Livadiiskii Range—a south-eastern spur of the Sikhota-Alin' Range. It is situated about 12 km southward from Anisimovka (better known from the old entomological literature under its previous name Kangauz)—a small railway station only 120 km from Vladivostok and, due to this position, it is one of the most accessible summits in the Southern Primorye with well marked zonation, typical for this region—from mixed coniferous-broad-leaved forest at the foot up to the subalpine zone with arctic vegetation and stony deposits at the top.

The first entomologist to visit this mountain (first in 1923 and then in 1928) was the young naturalist A. I. Kurenzov (later to become the famous explorer of the entomofauna of the Russian Far East and a professor), who collected here some remarkable species of insects including moths, some of which turned out to be new to science—*Eurydoxa advena* Fil. (Tortricidae) and *Areognatha sichotensis* Kurenz. (Noctuidae). The results of these observations (obtained mainly during the second ascent, because the first one took place in early spring when the top of this summit was still covered with snow) he published in two scientific papers (Kurenzov, 1929, 1937) and he later described both excursions in his memoirs based on his field note-books (Kurenzov, 1953, 1961, 1973).

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Since that time many naturalists and professional entomologists, including the first author of this paper, visited this mountain. But these were mostly one-day excursions, and the participants had no equipment for night-collecting, so even those overnighting at the top could collect almost nothing and all collections of moths were taken in the closest vicinity of Anisimovka only. For this reason the moth fauna of the Litovka Mt. still remains almost unknown, except for a little data scattered throughout the literature, mentioned above and some other papers (Filipjev, 1927; Tshistjakov, 1984).

In July, 1995 a joint Russian-Japanese expedition consisting of 7 entomologists had the opportunity to carry out a three-day (from 19th to 21st of July) field survey close to the foot of this mountain. Using this opportunity we decided to organize a special excursion for night trapping in the high altitude zone of the summit. During this excursion 2 light-traps were installed: one of them, with mercury vapor lamp, was operated from a portable generator "Honda EX 300" in the subalpine zone at an altitude of 1,240 m above sea level, and the other, with a super-actinic fluorescent light tube 8 W, was operated from a 12 Volts DC power source in the spruce forest, at an altitude of 1,150 m above sea level. Thus, using the transect method of collecting, we obtained some interesting data about the moth population within three vertical belts of vegetation. The results of these observations with brief accounts of the collecting sites are given herein.

Collecting sites

Biotope 1. 8 km SSE Anisimovka, the upper Beresovyi stream, 400 m a. s. l. Small meadow by the foot of the northern slope in the mixed coniferous-broad-leaved forest (MF, below). The clearing stretches along the stream, the banks of which are occupied by a narrow belt of riparian forest with old trees of *Populus maximowiczii*, *Ulmus propinqua*, *Chosenia arbutifolia*, *Alnus hirsuta* and *Syringa amurensis*. The opposite side of the meadow is bordered by dense secondary forest on the site of an old felling, consisting of various broad-leaved trees: *Populus davidiana*, *Fraxinus mandshurica*, *Ulmus laciniata*, *Betula mandshurica*, *B. costata*, *Acer mandschuricum*, *A. mono*, *Maackia amurensis*, *Malus mandshurica*, *Juglans mandshurica* and others. The underwood is composed of various shrubs (*Lonicera maackii*, *L. maximowiczii*, *Philadelphus tenuifolius*, *Ribes maximoviczianum*, *Eleutherococcus senticosus*, *Acanthopanax sessiliflorum*, *Corylus manshurica*, *Euonymus pauciflora*, *E. sacrosancta*), lianas (*Vitis amurensis*, *Schisandra chinensis*, *Actinidia colomicta*, *A. arguta*) and by young growth of coniferous trees. The end of the meadow adjoins the northern slope of the mountain, which is covered, like other nearby slopes, mainly by *Quercus mongolica*, *Tilia amurensis*, *T. mandshurica* and coniferous plants: *Pinus koraiensis*, *Abies holophylla* with an admixture of *Picea yesoensis*, *Abies nephrolepis* and isolated trees of *Taxus cuspidata*.

Biotope 2. 12 km S Anisimovka, fern-moss spruce forest on the northern slope of the mountain, at an elevation of 1,150 m above sea level (SF, below). Predominant species are coniferous—*Picea ajanensis*, *P. jesoensis* and *Abies nephrolepis* with isolated trees of *Pinus koraiensis*. Deciduous trees are represented mostly by *Betula costata* and *B. lanata*, with isolated trees of *Tilia taquetii*, *Ulmus laciniata*, *Acer tegmentosum* and *A. ukurunduense*. Underwood is very sparse, with scattered shrubs of *Lonicera gibbiflora*, *Sambucus sibirica*, *Rosa acicularis*, *Ribes manschuricum* and *Echinopanax elatus*. Grass cover is sparse also, composed mainly of ferns and mosses (*Dryopteris amurensis*, *D. bushiana*, *Athyrium rubripes*, *A. pycnosorum*, *Hylocomium splendens*, *Rhytidadelphus triquetrus*, *Pleuroziopsis ruthenica*), and some grass as well (*Carex xiphium*, *Oxalis acetosella*, *Waldsteinia ternata*, *Clintonia*

udensis).

Biotope 3. About 12 km S Anisimovka, stony deposit in the subalpine zone (SZ, below) on the southern slope near the eastern summit of the mountain, at an elevation of 1,240 m above sea level. The stony deposit is occupied partly by a tapestry of the prostrate shrub *Microbiota decussata* and some dwarf shrubs (*Ledum decumbens*, *Rhododendron aureum*, *Cassiope ericoides*, *Vaccinium uliginosum*, *Arctous alpina*) or by isolated shrubs of *Rosa acicularis* and sparse plots of grassy vegetation, including mostly *Artemisia lagocephala*. This open area stretches far down almost up to the foot, and is surrounded on both sides by orophylllic scrub forest consisting of scattered *Picea ajanensis*, *Betula lanata* and various shrubs, such as *Duschekia fruticosa*, *Syringa wolfii*, *Spiraea betulifolia* and *Lonicera edulis*. The clearings consist of subalpine meadows composed of *Calamagrostis langsdorffii*, *Veratrum alpestre*, *Hieracium coreanum*, *Geranium erianthum* and other tall grasses. Some plots at the boundary of the stony deposit with spruce forest are covered by a tapestry of *Beringia pacifica* with other dwarf shrubs.

Species composition and zonal distribution of the larger moths

The data about species composition and zonal distribution of the larger moths were obtained mainly during three nights of trapping, namely : 19, 21.VII—in the MF, 20.VII—simultaneously in FS and in SZ. In addition some material, taken 10 days later—31.VII and 1. VIII in the same site by the foot of the mountain (MF) are included as well (this additional material is marked with “+” in the list). Species recorded for the first time for the high altitude zone of the Sikhota-Alin' Range are indicated in the list with asterisk.

List of species	No. specimens collected in each biotope			List of species	No. specimens collected in each biotope		
	MF	SF	SZ		MF	SF	SZ
COSSIDAE							
<i>Lamellocossus terebrus</i> *	2	—	1	<i>T. consimilis</i>	3+1	—	—
LIMACODIDAE							
<i>Parasa sinica</i>	1	—	—	<i>T. albicostata</i>	2	—	—
<i>Ceratonema christophi</i>	1	—	—	<i>Parapsestis argenteopicta</i>	+1	—	—
DREPANIDAE							
<i>Agnidra scabiosa fixeni</i>	1+1	—	—	GEOMETRIDAE			
<i>Pseudalbara parvula</i>	+1	—	—	(ORTHOSTIXINAE)			
<i>Nordstromia grisearia</i> *	+3	4	1	<i>Naxa seriaria</i>	1	—	—
<i>Sabra harpagula olivacea</i>	+2	—	2	(GEOMETRINAE)			
<i>Drepana curvatula acuta</i>	2+3	—	1	<i>Geometra papilionaria</i>	—	1	—
<i>Ciliix filipjevi</i>	+1	—	—	<i>G. sponsaria</i>	+1	—	—
THYATIRIDAE				<i>G. ussuriensis</i>	+1	—	—
<i>Habrosyne intermedia</i>	+2	—	—	<i>G. dieckmanni</i>	1	—	—
<i>H. dieckmanni</i>	+1	—	—	<i>G. valida</i>	1	—	—
<i>Tethea ocularis amurensis</i>	7+3	—	—	<i>G. glauca</i> *	1+1	—	2
<i>T. or terrosa</i>	5	—	1	<i>Comibaena amoenaria</i> *	2	10	—
				<i>C. tancrei</i>	2	—	—
				<i>C. ingrata</i> *	1	2	—
				<i>Hemithea aestivaria</i>	1	—	—
				<i>Nipponogelasma lucia</i>	3+1	—	—

<i>Comostola subtiliaria</i>	5+1	-	-	<i>E. convergenata</i>	3+2	-	-
<i>Mujiaoshakua plana</i>	1	2	-	<i>E. pyropata</i>	1+1	-	-
<i>Jodis lactearia</i>	1	2	-	<i>E. pyraliata</i>	4	-	-
(STERRHINAE)				<i>Gandaritis agnes</i>	+2	-	-
<i>Idaea biselata*</i>	1+5	16	-	<i>G. fixseni</i>	+1	-	-
<i>I. auricruda</i>	+1	-	-	<i>Calleulype whitelyi</i>	2+1	-	-
<i>I. effusaria</i>	11	-	-	<i>Xenortholitha propinquata</i>	3+2	2	1
<i>I. promisquaria</i>	5	-	-	<i>Plemyria rubiginata</i>	2	-	-
<i>I. aversata</i>	1	-	-	<i>Thera variata</i>	-	10	3
<i>I. terpnaria</i>	+3	-	-	<i>Electrophaes corylata</i>	3	2	-
<i>Scopula nigropunctata</i>	+1	-	-	<i>Eupithecia abietaria</i>	-	1	-
<i>S. disclusaria</i>	2	-	-	<i>E. gigantea</i>	1+4	-	-
<i>S. tenuisocius*</i>	+1	1	-	<i>E. kobayashii*</i>	1	1	-
<i>S. asthena</i>	1+1	-	-	<i>E. virgaureata*</i>	-	1	-
<i>Problepsis phoebearia</i>	1+2	-	-	<i>E. tabidaria*</i>	-	2	-
(LARENTIINAE)				<i>Chloroclystis v-ata</i>	1	-	-
<i>Venusia cambrica</i>	-	9	2	<i>Leptostegna tenerata</i>	1	-	-
<i>V. blomeri</i>	1+1	-	-	<i>Acasis viretata</i>	4+2	-	-
<i>V. laria*</i>	1+1	2	-	<i>Brabira artemidora</i>	1	4	-
<i>Asthena amurensis</i>	-	1	1	<i>Tyloptera bella</i>	2+2	-	1
<i>A. sachalinensis</i>	2	8	-	(ENNOMINAE)			
<i>Hydrelia sylvata</i>	1	-	-	<i>Abraxas grossulariata*</i>	2	1	-
<i>H. flammeolaria</i>	1	2	-	<i>A. sylvata*</i>	1	1	-
<i>H. shioyana</i>	1+2	-	-	<i>A. niphonibia</i>	4+2	-	-
<i>H. adesma</i>	1+6	-	-	<i>A. fulvobasalis</i>	1+1	-	-
<i>Pseudostegania defectata</i>	1+1	-	-	<i>Lomaspilis marginata</i>	1	2	-
<i>Xanthorhoe abraxina</i>	2	-	-	<i>Stegania cararia</i>	9+1	-	-
<i>X. rectantemediana</i>	2	-	-	<i>Semiothisa signaria</i>	4+1	46	1
<i>X. quadrifasciata</i>	-	1	-	<i>Aporhoptrina semi-orbiculata</i>	2	-	-
<i>Glaucochroa undulifera-ria</i>	1+2	-	-	<i>Phanerothyris sinearia</i>	2	-	-
<i>Epirrhoa supergressa</i>	2	-	-	<i>Taeniophora unio</i>	2+1	25	2
<i>Horisme tersata</i>	1	-	-	<i>Lomographa temerata</i>	5+3	-	-
<i>Rheumaptera inanata*</i>	-	-	1	<i>Parabapta clarissa</i>	1	-	-
<i>Triphosa dubitata</i>	+1	18	6	<i>Euchristophia cumulata</i>	5+4	3	1
<i>Hydriomena furcata</i>	2	-	-	<i>Cabera pusaria*</i>	-	1	-
<i>Euphyia cineraria</i>	+1	1	-	<i>C. exanthemata</i>	14	-	-
<i>Perizoma taeniatum</i>	+2	-	-	<i>C. schaefferi</i>	1	-	-
<i>P. saxeum</i>	6	15	-	<i>C. purus</i>	4	-	-
<i>P. minimatum*</i>	1	-	1	<i>C. griseolimbata</i>	4+2	-	-
<i>Hysterura declinans</i>	-	5	1	<i>Psyra boarmiata</i>	2	2	-
<i>Eustroma melan-cholicum</i>	+1	14	2	<i>Phthonandria emaria</i>	+1	-	-
<i>Eulithis prunata</i>	4	-	-	<i>Menophra senilis</i>	1	2	-
				<i>Angerona prunaria</i>	-	-	1

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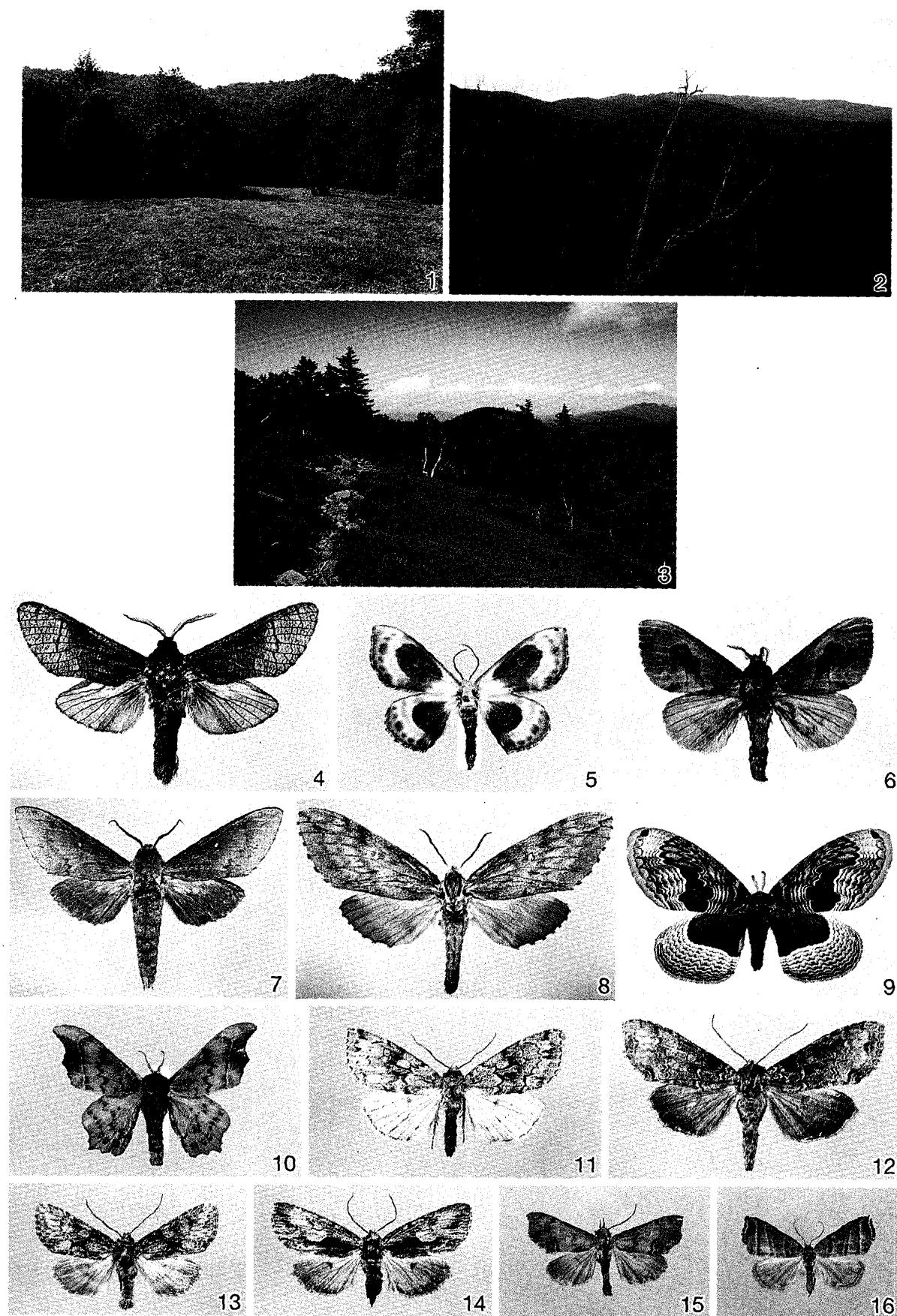
<i>Bupalus vestalis*</i>	-	10	-	<i>Odonestis pruni rufescens</i>	5+6	-	-
<i>Anticypella diffusaria</i>	+2	-	-	<i>Dendrolimus superans</i>	10+6	-	2
<i>Archanna melanaria</i>	1	3	2	<i>sibiricus</i>			
<i>Alcis bastelbergeri</i>	7	3	-	<i>Paralebeda plagifera</i>	+6	-	-
<i>A. extinctaria</i>	-	4	3	<i>femorata</i>			
<i>A. jubata</i>	2+1	6	-	<i>Malacosoma neustrium</i>	3	-	1
<i>A. medialbifera</i>	-	1	-	SPHINGIDAE			
<i>Heterarmia dissimilis*</i>	3	-	1	<i>Sphinx morio arestus</i>	1	-	-
<i>Hypomecis roboraria</i>	3+1	2	3	<i>Sphingulus mus</i>	1	-	-
<i>H. punctinalis</i>	3	4	-	<i>Dolbina tancrei</i>	2	-	-
<i>Deileptenia ribeata</i>	4+6	54	-	<i>D. exacta</i>	+2	-	-
<i>D. mandschuriaria</i>	1	-	-	<i>Kentrochrysalis streckeri</i>	1	-	-
<i>Cusiala stripitaria</i>	1	-	-	<i>Phyllosphingia dissimilis</i>	2	-	-
<i>Parectropis nigrosparsa</i>	5+1	-	-	<i>Callambulix tatarinovi</i>	1	-	-
<i>Aethalura nanaria</i>	1	-	-	<i>Smerinthus caecus</i>	1	-	-
<i>Jankowskia athleta</i>	1	-	-	<i>Laothoe amurensis</i>	1+3	-	1
<i>J. pseudathleta</i>	2	-	-	<i>Ampelophaga rubiginosa</i>	3+8	-	
<i>Phthonosema tendino-</i>	1+1	-	-	<i>Deilephila elpenor</i>	+2	-	2
<i>isatia</i>				SATURNIIDAE			
<i>Ectropis crepuscularia</i>	5+9	1	-	<i>Actias artemis</i>	4+3	-	-
<i>E. lutamentaria</i>	1	-	-	<i>Aglia tau</i>	1	-	-
<i>Erebomorpha fulguraria</i>	-	-	1	BRAHMAEIDAE			
<i>Biston regalis</i>	1	-	-	<i>Brahmaea tancrei*</i>	4+8	-	2
<i>Selenia tetralunaria</i>	1+2	-	1	BOMBYCIDAE			
<i>Eilicrinia wehrlii</i>	1	-	-	<i>Oberthueria caeca*</i>	6+9	-	1
<i>Ourapteryx ussurica</i>	1+2	-	-	NOTODONTIDAE			
<i>Tristophis veneris</i>	2+1	-	-	<i>Cerura erminea can-</i>	4	-	1
<i>Scionomia mendica</i>	2	-	-	<i>dida*</i>			
<i>S. parasinuosa</i>	3	2	-	<i>Furcula furcula san-</i>	1+3	-	-
<i>Ocoelophora lenti-</i>	2+1	-	-	<i>gaca</i>			
<i>ginosaria</i>				<i>F. bicuspis</i>	2	1	-
<i>Plagodis pulveraria</i>	+1	-	-	<i>Hemifentonia mands-</i>	-	-	1
<i>P. dolabraria</i>	+2	-	-	<i>churica*</i>			
<i>Agaraeus parva*</i>	2	-	1	<i>Uropyia meticulodina</i>	-	-	1
<i>Garaeus mirandus</i>	-	5	-	<i>Stauropus fagi persimilis</i>	7+3	2	5
<i>Spilopera debilis</i>	2+2	4	2	<i>Cnethodonta grisescens</i>	1+7	-	-
<i>Scardamia aurantia-</i>	+2	-	-	<i>Notodontia dembowskii</i>	2+4	4	2
<i>caria</i>				<i>N. torva</i>	+3	-	-
<i>Epholca arenosa</i>	1+1	-	-	<i>P. lativitta</i>	+3	-	-
<i>Heterolocha laminaria</i>	1	-	-	<i>Peridea gigantea*</i>	1	-	3
<i>Endropiodes indictinaria</i>	1+6	-	-	<i>P. oberthueri</i>	+1	-	-
LASIOCAMPIDAE				<i>P. moltrechti</i>	+4	-	-
<i>Gastropacha orientalis</i>	2	-	-	<i>P. graeseri</i>	+5	-	-
<i>G. populifolia</i>	6+3	-	1	<i>P. aliena</i>	+1	-	-
<i>angustipennis*</i>				<i>Lophocosma atriplaga</i>	1	-	-
<i>G. clathrata</i>	+2	-	2				

<i>Nerice leechi</i>	1	-	-	<i>Mitochrista miniata</i>	2+2	-	-	
<i>Leucodonta bicoloria</i>	3+1	1	-	<i>M. aberrans askoldensis</i>	+2	-	-	
<i>Phalera bucephala</i>	1	-	-	<i>M. rosaria</i>	+1	-	-	
<i>Shaka atrovittatus</i>	5+2	-	-	<i>M. rosacea</i>	+1	-	-	
<i>Pterostoma griseum</i>	1	1	1	<i>M. pallida</i>	+1	-	-	
<i>P. sinicum</i>	1	-	-	<i>Nudina artaxidia</i>	1	-	-	
<i>Fusapteryx ladislai</i>	-	1	-	<i>Melanaema venata</i>	2	-	-	
<i>Togepteryx velutina</i>	1	-	-	<i>Macrobrochis staudingeri</i>	+3	-	-	
<i>Lophontosia cuculus</i>	+1	-	-	<i>Pelosia muscerda tetra-</i> <i>sticta</i>	+1	-	-	
<i>Hexafrenum leucodera*</i>	4+3	1	1	<i>Lithosia quadra*</i>	1	-	1	
<i>Semidonta biloba</i>	5+5	4	-	<i>Ghoria gigantea</i>	5+27	7	-	
<i>Epodonta lineata</i>	+3	-	-	<i>G. collitoides*</i>	3+13	-	-	
<i>Ptilodon hoegei</i>	1	-	-	<i>Eilema griseolum vetusta</i>	7	-	-	
<i>Spatalia dives</i>	1	-	-	<i>E. deplanum pavescens</i>	-	5	-	
<i>S. plusiotis</i>	+2	-	-	<i>E. cibratum</i>	6+15	8	4	
<i>S. doerriesi</i>	1	-	-	<i>Pericallia matronula</i> <i>amurensis</i>	2+2	-	-	
<i>Micromelalopha trog-</i> <i>lodyta</i>	1	-	-	<i>Rhyparioidea amurensis</i>	1+2	-	-	
<i>Glaphisia crenata japon-</i> <i>ica</i>	9+6	-	2	<i>R. nebulosus</i>	2	-	-	
<i>Closteria albosigma cur-</i> <i>tuloides</i>	5+5	-	-	<i>Spilosoma urticae mandli</i>	1	-	-	
<i>C. anachoreta</i>	+10	-	-	<i>Chionarctia nivea</i>	+1	-	-	
LYMANTRIIDAE								
<i>Calliteara modesta</i>	1	-	-	<i>Spilarctia seriatopunc-</i> <i>tata</i>	3+2	-	-	
<i>C. lunulata acronycta</i>	2	-	-	NOCTUIDAE				
<i>Cifuna locuples confusa</i>	+1	-	-	(PANTHEINAE)				
<i>Arctornis album</i>	2+3	-	-	<i>Anacronicta caliginea</i>	1	-	-	
<i>A. l-nigrum ussuricum</i>	2+5	-	-	<i>Trichlosea ludifica*</i>	-	-	1	
<i>Leucoma salicis</i>	2+1	-	-	<i>Panthea coenobita</i>	2	-	1	
<i>Iwela ochropoda</i>	+1	-	-	<i>Colocasia mus</i>	-	-	1	
<i>Numenes disparilis</i>	+2	-	-	(ACRONICTINAE)				
<i>Lymantria mathura</i>	+3	-	-	<i>Belciades niveola</i>	1	-	-	
<i>aurora</i>	.	.	.	<i>Moma fulvicollis</i>	1	-	-	
<i>L. monacha</i>	1	-	-	<i>Nacha malachitis*</i>	-	-	1	
<i>Pida niphonis</i>	1	-	-	<i>Gerbathodes lichenodes</i>	1	-	-	
<i>Sphrageidus similis</i>	7+5	-	-	<i>Acronicta vulpina*</i>	-	1	1	
<i>Euproctis piperita</i>	2	-	-	<i>A. major</i>	1	-	-	
NOLIDAE				<i>Hyboma adaucta</i>	3+2	-	-	
<i>Meganola strigulosa</i>	3	-	-	<i>H. strigosa</i>	1	-	-	
<i>M. bryophillaris</i>	1	-	-	<i>Triaena cuspis*</i>	1	-	1	
<i>Evonima mandschur-</i> <i>iana</i>	+1	-	-	<i>Jocheera alni</i>	-	-	1	
ARCTIIDAE				<i>Hylonycta hercules</i>	1	-	-	
<i>Stigmatophora leacrita</i>	1	-	-	<i>Subacronicta mega-</i> <i>cephala</i>	2	-	-	
<i>S. micans</i>	1	-	-	<i>Craniophora ligustri</i>	7	-	-	
				<i>C. praeclarata</i>	2	-	1	

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<i>C. jankowskii</i>	1	-	-	<i>Antha grata</i>	2	-	-
<i>C. albonigra</i>	1	-	-	<i>Cosmia restituta</i> *	-	-	1
(HELIOTHINAE)				<i>C. spurcopyga</i>	3	-	-
<i>Pyrrhia umbra</i>	-	-	1	<i>C. camptostigma</i>	2	-	-
(NOCTUINAE)				<i>Dimorphicosmia vari-egata</i>	-	-	2
<i>Actebia praecurrents</i>	-	-	1	<i>Enargia paleacea</i>	-	-	1
<i>Protexarnis balanistis</i> *	-	-	1	<i>Ipimorpha contusa</i> *	5	1	1
<i>Eugrapha sigma</i>	3	-	1	<i>Chasminodes albonitens</i>	1	-	-
<i>Sineugrapha bipartita</i>	-	-	2	<i>C. sugii</i> *	-	-	1
<i>Paraiarsia punicea</i>	1	-	-	<i>Chytonix albonotata</i>	1	-	1
<i>Diarsia brunnea</i>	2	2	6	<i>Eucarta arctides</i>	1	-	-
<i>Xestia sincera</i>	-	4	1	<i>Prometopus flavicollis</i>	1	-	-
<i>X. descripta</i> *	8	3	8	<i>Sphragifera sigillata</i>	1	-	-
<i>X. ditrapezium</i>	-	3	5	(SARROTHRIPIPNAE)			
<i>Anaplectoides prasina</i>	-	-	4	<i>Nycteola asiatica</i> *	-	-	1
<i>A. virens</i>	2	-	2	(CHLOEPHORINAE)			
(HADENINAE)				<i>Parhylophila celsiana</i>	7	-	-
<i>Polia nebulosa</i>	1	2	1	<i>Pseudoips prasinanus</i> *	1	-	2
<i>P. goliath</i>	-	1	3	(ACONTIINAE)			
<i>P. hepatica</i>	-	-	3	<i>Trisateles emortualis</i> *	-	1	-
<i>Melanchra persicariae</i>	1	-	2	<i>Koyaga numisma</i>	1	-	-
<i>Lacanobia contigua</i>	-	-	3	<i>Anterastria atrata</i> *	-	-	1
<i>L. contrastata</i>	1	-	-	<i>Bryophilina mollicula</i> *	-	-	1
<i>Lasionycta hospita</i> *	-	-	6	(PLUSIINAE)			
<i>Hadena dealbata</i>	1	-	-	<i>Lamprotes mikadina</i>	1	-	-
<i>Mythimna divergens</i> *	-	-	2	<i>Autographa urupina</i> *	-	-	1
<i>Aletia radiata</i> *	-	-	2	<i>A. buraetica</i> *	-	-	1
(CUCULLINAE)				<i>Diachrysia shrysitis</i>	1	-	-
<i>Callierges ramosula</i> *	-	-	1	(CATOCALINAE)			
(AMPHIPYRINAE)				<i>Dysgonia mandschurica</i>	1	-	-
<i>Apamea sodalis</i> *	-	-	1	<i>Mocis ancilla</i>	1	-	-
<i>A. striata</i>	-	-	1	(OPHIDERINAE)			
<i>A. aquila</i>	-	-	1	<i>Lygephila pastinum</i>	1	-	-
<i>A. remissa</i>	-	-	1	<i>Synpoides hercules</i>	4	-	-
<i>A. sordens</i>	-	-	1	<i>Pangrapta lunulata</i>	1	-	-
<i>A. scolopacina</i>	1	-	-	<i>Hepatica anceps</i>	1	-	-
<i>Leucapamea askoldis</i>	1	-	-	<i>Diomea jankowskii</i>	1	-	-
<i>Parastichtis suspecta</i> *	-	-	1	<i>Laspeyria flexula</i> *	1	-	2
<i>Celaena leucostigma</i>	-	-	1	<i>Paragabara secunda</i>	1	-	-
<i>Euplexia lucipara</i>	1	-	9	(HYPENINAE)			
<i>Phlogophora illustrata</i>	3	-	6	<i>Hypena tristalis</i>	1	-	1
<i>Trachea atriplicis</i>	1	-	-	<i>Bomolocha bipartita</i> *	-	-	1
<i>T. punkikonis</i>	1	-	-	<i>B. zilla</i>	1	-	-
<i>Athetis albesignata</i>	1	-	-	(HERMINIINAE)			
<i>Amphipyra schrenckii</i>	1	1	1				



<i>Paracolax trilinealis</i>	1	-	-	<i>Z. fumosa</i>	1	-	-
<i>P. fascialis</i>	3	7	1	Total number			
<i>Zanclogantha lunalis</i>	1	-	-	343	285	71	101

Discussion

In spite of the short period of research, we obtained very interesting results, including some remarkable faunistic data. For example, from 132 collected species of the Geometridae, 3 (*Scopula asthena*, *Venusia laria*, *Hydrelia adesma*) turned out to be new for Russia, and 4 species (*Idaea versata*, *Scopula tenuisocius*, *Perizoma taeniatum*, *Eulithis prunata*) are new for Primorye Territory; among 98 collected species of the Noctuidae, 3 species (*Trichosea ludifica*, *Polia hepatica*, *Apamea sodalis*) are absent from the current check-list of the Noctuidae of the Primorye Territory by Kononenko (1990) and are recorded here for the first time for this region also.

However, the list of species presented above is far from complete even for that season. The real number of species, representing a middle summer phenological aspect in the local fauna, must be much higher. For this reason the obtained correlation of species composition as 285 : 71 : 101 in the discussed biotopes must be seen as a provisional one and reflects only the results of this short observation. If we had more complete data, this correlation would be changed substantially. Moreover, about 60 species, mentioned in the list from MF only are known (Kurenzov, 1937; Tshitjakov, 1975a, b; Vasyurin, 1978; Vasyurin & Tshitjakov, 1979; Kononenko, 1986) to be more or less constantly occurring (*Agnidra scabiosa fixeni*, *Drepana curvatula acuta*, *Habroyne dieckmanni*, *Tethea ocularis amurensis*, *Venusia blomeri*, *Eulithis convergenata*, *Xanthorhoe rectanterior*, *Lomographa temerata*, *Cabera exanthemata*, *Plagodis pulveraria*, *Plagodis dolabraria*, *Furcula furcula sangaika*, *Stauropus fagi persimilis*, *Notodonta dembowskii*, *Leucodonta bicoloria*, *Spatialia dives*, *Closteria anachoreta*, *Sphrageidus similis*, *Eilema cibratrum*, *Spilarctia seriatopunctata*, *Panthea coenobita* and others) or penetrating from time to time to the mountain taiga forests (*Comibaena tancrei*, *Epirrhoe supergressa*, *Deileptenia mandschuriaria*, *Phthonosema tendinosaria*, *Cabera schaefferi*, *Endropiodes indictinata*, *Malacosoma neustria testaceum*, *Callambulix tatarinovi*, *Ampelophaga rubiginosa*, *Actias artemis*, *Shaka atrovittatus*, *Togepteryx velutina*, *Arctornis album*, *Euproctis piperita*, *Pericallia matronula* and others). Quite probably all of them will be found in future in the high altitude zone of Mt Litovka also. But even on this limited data it is possible to see that species composition of Macroheterocera in SF and SZ consists of a high number of species, more typical for the lower floristic belt. Thus, the overwhelming majority of all discussed species from the Drepanidae, Thyatiridae, Lasiocampidae, Sphingidae, Notodontidae, Lymantriidae, Arctiidae and Geometridae recorded here from the high altitude zones actually are connected trophically with broad-leaved

Figs 1-3. Collecting sites of Mt Litovka. 1. Biotope 1 (mixed broad-leaved-coniferous forest).

2. Biotope 2 (spruce-forest). 3. Biotope 3 (top of Mt Litovka).

Figs 4-16. Some moths collected at Mt Litovka. 4. *Lamellococtus terebrus* ([Denis & Schiffermüller]). 5. *Problepsis phoebearia* Erschoff. 6. *Paralebeda plagifera femorata* Ménétrier. 7. *Sphingulus mus* Staudinger. 8. *Kentrochrysalis streckeri* Staudinger. 9. *Brahmaea tancrei* Austant. 10. *Oberthueria caeca* (Oberthür). 11. *Xestia sincera* (Herrich-Schäffer). 12. *Polia hepatica* (Clerck). 13. *Lasionycta hospita* Bang-Haas. 14. *Callierges ramosula* (Staudinger). 15. *Hepatica anceps* Staudinger. 16. *Paragabala secunda* Remm.

trees and shrubs, occurring in the priamurian mixed forests. The greater part of the Acronictinae, Catocalinae and Ophiderinae from our list of the Noctuidae also have close relations with deciduous vegetation.

The number of species recorded from SF is smaller than from any other biotope. Typical species in this biotope are as follows: *Comibaena amoenaria*, *Venusia cambrica*, *Asthena sachalinensis*, *Triphosa dubitata*, *Perizoma saxeum*, *Thera vatiata*, *Semiothisa signaria*, *Taeniophora unio*, *Bupalus vestalis*, *Deileptenia ribeata*, *Garaeus mirandus* from Geometridae and *Xestia sincera* from Noctuidae. Besides, we collected 1 male of *X. sincera* in SZ. Meanwhile Fibiger (1993) regards *X. sincera* as an inhabitant of primeval coniferous forest and as a very rare species everywhere. One of us (Eda), obtained evidence of that a week later, collecting *X. sincera* in the subalpine zone of Mt Kita-dake (at an altitude of about 2,200 m) in Japan (Kobayashi & Eda, 1995). All the rest indicated for this biotope, are species which inhabit only MF constantly or are common to both these biotopes.

The situation is almost the same with species composition of Macroheterocera in SZ, composed totally by moths from the lower floristic zones, while the typical subalpine species are not found here. On the other hand most of the Noctuinae and some *Apamea* (*A. aquila*, *A. remissa*, *A. striata*) and several Geometridae (*Rheumaptera inanata*, *Angerona prunaria*, *Erebomorpha fulguraria*) in our case are recorded from SZ only. A curious fact is that only a small number of species penetrate from valley to mountain taiga through the dense forest along northern slope (such as *Nordstromia grisearia*, *Hypomecis roboraria*, *Eustroma melancholicum*, *Xenortholitha propinquata*, *Euchristophia cumulata*, *Furcula bicuspis*, *Stauroopus fagi persimilis*, *Notodonta dembowskii*, *Prerostoma griseum*, *Fusapteryx ladislai*, *Hexafrenum leucodera*, *Semidonta biloba*, *Ghoria gigantea*, *Eilema deplanum pavescens*), while many of them (*Lamellocossus terebrus*, *Sabra harpagula olivacea*, *Drepana curvatula acuta*, *Tethea or terrosa*, *Geometra glaucaria*, *Perizoma minimatum*, *Tyloptera bella*, *Heterarmia dissimilis*, *Agaraeus parva*, *Gastropacha populifolia angustioennis*, *G. clatrata*, *Dendrolimus superans sibiricus*, *Malacosoma neustrium testaceum*, *Laothoe amurensis*, *Deilephila elpenor*, *Brahmaea tancrei*, *Oberthueria caeca*, *Cerura erminea candida*, *Hemifentonia mandshurica*, *Uropyia meticulodina*, *Peridea gigantea*, *Glaphisia crenata japonica*, *Lithosia quadra*, *Ghoria collitoides* and many others) have not been found in SF, but were observed in SZ near the top of the summit, which they reached through an open area, along a stony deposit on the southern slope, spreading far to the foot of the mountain.

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摘要

ロシア沿海州 Litovka 山 (シホテアリン山脈) における蛾 (Yu. A. Tshistjakov, 枝恵太郎, E. A. Beljaev)

筆者らは 1995 年 7 月 19-21 日にかけて、ロシア沿海州、シホテアリン山脈南西端に位置する Litovka 山 (標高 1,279 m, 沿海州第 2 の高峰) にて、3 つの異なる環境で夜間採集を実施した。

その結果、小蛾類をのぞく 15 科 343 種の蛾類が確認された。採集地の環境別に見ると、ドロノキ・ハルニレ・ケショウヤナギ・シナノキ類・モンゴリナラなどの落葉広葉樹にチョウセンゴヨウ・エゾマツなどの針葉樹が混じる混交林 (標高 400 m) で 285 種、トウヒ・モミ類の原生林内 (標高 1,150 m) で 71 種、岩稜にウスリーヒバが覆う山頂部 (標高 1,279 m) で 101 種が確認された。このうち、日本になじみの薄い蛾類数種について図示した。

新知見として、ロシア初記録となるのは以下のシャクガ科 3 種である。

Scopula asthena Inoue (キスジシロヒメシャク)

Venusia laria Oberthür (クロスジカバイロナミシャク)

Hydrelia adesma Prout (カバイロヒメナミシャク)

また、沿海州において初記録となる種は、以下のシャクガ科4種とヤガ科3種である。

Idaea aversata (Linnaeus) (エゾキヒメシャク)

Scopula tenuisocius Inoue (アメイロヒメシャク)

Perizoma taeniatum (Stephens) (ウスカバスジナミシャク)

Eulithis prunata (Linnaeus) (チョウセンハガタナミシャク)

Trichosea ludifica (Linnaeus) (キタキバラケンモン)

Polia hepatica (Clerck)

Apamea sodalis (Butler) (チャイロカドモンヨトウ)

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